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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/807,292

03/24/2004

Suenori Kimura

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EXAMINER

WILLIAMS, JOSEPH L

ART UNIT

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2889

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/807,292	Applicant(s) KIMURA ET AL.	
	Examiner Joseph L. Williams	Art Unit 2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/04, 8/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kyushima et al. (US 4,881,008).

Regarding claim 1, Kyushima ('008) teaches in figure 2A and 2B a multi-anode type photomultiplier tube comprising: a faceplate (7) made from glasses having an inner surface; a side tube (6) made from glass and having a hollow shape extending in a tube axial direction which is substantially perpendicular to the faceplate, the side tube being joined to one surface of the faceplate; a photocathode formed on the inner surface of the faceplate in the side tube to emit a photoelectron in response to light incident on the faceplate, the photocathode having a plurality of regions (2-5), each of the plurality of regions being defined by a boundary therebetween; a partitioning wall (14-16) having a predetermined length extending from the boundary along the tube axial direction; a plurality of electron multiplying portions (21-28) provided in the side tube, the plurality of electron multiplying portions (4 total) corresponding to the plurality of regions on the faceplate for multiplying the photoelectron emitted from the photocathode; and a plurality of anodes (30-33) provided in the side tube, the plurality of anodes corresponding to the plurality of regions on the photocathode for receiving an electron

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emitted from the plurality of electron multiplying portions, wherein each of the plurality of electron multiplying portions includes: a first dynode (21,23,25,27) provided in the vicinity of the side tube for multiplying the photoelectron impinging thereon from the photocathode to emit a secondary electron; and a second dynode (22,24,26,28) provided in the vicinity of the tube axis for multiplying the secondary electrons impinging thereon from the first dynode to emit secondary electrons wherein the multi-anode photomultiplier tube further comprises: a shield electrode (10, 11, 12, 13) provided between the second dynode and the photocathode for shielding the second dynode from the photocathode; the photocathode, the partitioning wall, and the shield electrode are maintained at a same potential.

Regarding claim 2, Kyushima ('008) teaches the shield electrode has an aperture, thereby adjusting an electric field in the side tube; to reduce transit time differences among electrons which are emitted from the photocathode to impinge on the first dynode.

Regarding claim 3, Kyushima ('008) teaches a fiat electrode (17) provided between the shield electrode and the second dynode, the flat electrode having an aperture which enables an electron to pass there through to the first dynode

Regarding claim 4, Kyushima ('008) teaches the shield electrode has an aperture, thereby adjusting an electric field in the side tube; to reduce transit time differences among electrons which are emitted from the photocathode to impinge on the first dynode.

Regarding claim 6, Kyushima ('008) teaches the shield electrode has an aperture, thereby adjusting an electric field in the side tube; to reduce transit time differences among electrons which are emitted from the photocathode to impinge on the first dynode.

Regarding claim 7, the claims are directed towards the operation of the photomultiplier and thus not germane to the final structure. Hence, the claimed subject matter has not been afforded patentable weight.

Regarding claim 8, Kyushima ('008) teaches the shield electrode has an aperture, thereby adjusting an electric field in the side tube; to reduce transit time differences among electrons which are emitted from the photocathode to impinge on the first dynode.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyushima et al. (US 4,881,008) in view of Suyama et al. (US 6,198,221).

Regarding claim 5, Kyushima ('008) teaches all of the claimed limitations except for the aperture of the flat electrode is provided with an electrically conductive mesh member.

Further regarding claim 5, Suyama ('221) teaches a photocathode comprise of, in part, a mesh electrode (figure 8, part 72) for the purpose of increasing the flow of electrons.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the mesh electrode of Suyama in the photocathode of Kyushima for the purpose of increasing the flow of electrons.

Regarding claim 9, the claims are directed towards the operation of the photomultiplier and thus not germane to the final structure. Hence, the claimed subject matter has not been afforded patentable weight.

Regarding claim 10, Kyushima ('008) teaches the shield electrode has an aperture, thereby adjusting an electric field in the side tube; to reduce transit time differences among electrons which are emitted from the photocathode to impinge on the first dynode.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Williams whose telephone number is (571) 272-2465. The examiner can normally be reached on M-F (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on (571) 272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph L. Williams/
Primary Examiner, Art Unit 2889